

submit that the specification is in fact enabling of claims 22-24 as currently pending. As well, Applicants submit that the Examiner's stated grounds for rejection of Claims 22-24 are in no way relevant or applicable to pending Claims 87 and 88, and thus no valid rejection has been articulated as to Claims 87 and 88. Thus, the rejections are respectfully urged as misplaced, and should be withdrawn. Favorable reconsideration is requested.

The §112 Rejection as to Claims 22-24

Independent Claim 22 is directed to a composition of matter of the formula $[C_nH_L]-[R'-R]_m$, wherein the carbon atoms, C_n , are surface carbons of a substantially cylindrical, graphitic fibril being substantially free of protolytically deposited carbon, the projection of the graphite layers on said fibrils extending for a distance at least two fibril diameters, where n is an integer, L is a number less than $0.1n$, m is a number less than $0.5n$, each of R is selected from SO_3H , $COOH$, NH_2 , OH , CHO , CN , $COCl$, halide, $COSH$, SH , $COOR'$, SR' , SiR'_3 , $Si-(OR')_y-R'_{3-y}$, $Si-(O-SiR'_2)-OR'$, R'' , Li , AlR'_2 , $Hg-X$, TlZ_2 and $Mg-X$, where y is an integer less than or equal to 3, R' is alkyl, aryl, cycloalkyl, aralkyl or cycloalkyl, X is a halide, R'' is fluoroalkyl, fluoroaryl, fluorocycloalkyl or fluoroaroalkyl, and Z is carboxylate or trifluoroacetate.

Claims 23 and 24 are each directed to the composition of matter of Claim 22, where the fibrils have additional features.

In rejecting Claims 22-24 the Examiner stated that only the synthesis of $-R^1-R = -CH_2-NH_2$ is described in the specification, at page 26, thus the specification allegedly "does not enable any person skilled in the art to which it pertains, or with which it is most recently connected, to make the invention commensurate in scope with these claims" (i.e., Claims 22-24).

The issue is thus as follows. Is a person skilled in the art of synthetic organic chemistry able, given the specification and the references and examples contained therein, able, without undue experimentation, to make the compositions claimed in Claims 22-24. Applicants submit that the answer is unequivocally in the affirmative. All that is required is to "put two and two together" and thus read various sections of the specification which exemplify certain reactions together to synthesize any of the claimed functional groups. The specification clearly discloses what types of reactions are utilized to achieve various functional groups on carbon fibrils. As well, numerous chemical synthesis references are included. Finally, numerous examples are included, encompassing dozens of exemplary reactions and synthetic pathways. To require the specification to literally teach jot for jot -- as if to a third year undergraduate -- how to make each and every claimed functional group on a carbon fibril would take ten times as many words, and effectively obliterate the person skilled in the art standard for invention disclosure which is well settled law in patent cases.

For example, the synthetic pathway for a functional group where R^1 is alkyl and R is $-NH_2$ is not literally detailed in a step by step series of instructions unique to each possible product. Thus, the examiner claimed, *inter alia*, that where R^1 is alkyl there is no enablement, rather only where R^1 is CH_2 is there enablement. Nonetheless, any non-beginner in the art of organic synthetic chemistry would know, from the disclosure at the top of page 23 (which lists numerous primary reaction products), that just as (1) $RFS + \text{Cyanogen}$ yields $\text{Fibril}-CN$, also (2) $RFS + CH_2=CH-CN$ yields $\text{Fibril}-R'CN$, where R' is a hydrocarbon (alkyl, cycloalkyl, etc.) radical. Now, using that knowledge in connection with the disclosure at the bottom of page 26, hydrogenating the CN group on (1) $\text{Fibril}-CN$, i.e., $\text{Fibril}-CN + H_2$ to yield $\text{Fibril}-CH_2-NH_2$, *also means* that hydrogenating the CN group on (2) $\text{Fibril}-R'CN$, i.e., $\text{Fibril}-R'CN + H_2$, yields $\text{Fibril}-R'-CH_2-NH_2$, thus enabling any functional group where R' is a hydrocarbon radical.

One could similarly trace the disclosure for each of the claimed products of independent Claim 22.

Thus, using the language of the specification (but the R^1 —R symbology if the Examiner), R^1 may be considered, for example, a primary product and R may be considered, for example, a secondary product formed by reaction upon a carbon fibril with a primary product. The specification discloses how to form the primary and secondary products. For example, Section 4 (pages 29-32) describes how aromatic compounds can be absorbed onto the surface of a carbon fibril. The specification also discloses combining the steps to synthesize any desired disclosed product. To analogize from the non-technical realm, all that has to be done is to pick a primary product synthesis and match it with a secondary product synthesis to synthesize any of the claimed products, much as a diner at a Chinese restaurant fashions their meal by choosing one dish from column A and another from column B. The Chinese restaurant menu does not need to list every possible AB combination. Diners "skilled in the art" well understand what information columns A and B provide, and routinely "synthesize" any possible dinner combination. Chemists skilled in the art would have no difficulty, Applicants urge, in synthesizing any of the disclosed products in Claims 22-24. Thus any rejection as to enablement should be withdrawn.

The §112 Rejection as to Claims 87 and 88

Regarding any rejection of Claims 87 and 88, Applicants respectfully submit that there is no valid rejection of these claims. Pursuant to MPEP Section 706.03(c), when making a rejection as to enablement based upon the first paragraph of 35 U.S.C. 112, i.e., a 7.31.02 Rejection or a 7.31.03 Rejection, it is required to provide an explanation as to why the specification is not enabling. No explanation was provided as to Claims 87 and 88, inasmuch as

the Examiner only discussed Claims 22-24, and that portion of the specification relating to those claims at page 26. There being no explanation as to any rejection, Applicants remain at a loss as to how to respond. Thus any rejection of Claims 87 and 88 fails on formal grounds and should be withdrawn.

Or, Applicants urge, if the Examiner intends in fact to reject Claims 87 and 88, a new non-final office action should issue with the proper required explanation as to why Claims 87 and 88 are not, in the Examiner's opinion, enabled by the specification. Inasmuch as a great deal of the specification is concerned with contacting carbon fibrils with oxidizing agents and then further contacting them with reactants to add functional groups, Claim 87 is fully enabled. For example, Applicants submit that Claim 87 is at least supported by pages 32-44 of the specification.

Claim 88 is similarly enabled by the entire specification. Claim 88 simply involves uniform surface substitution.

CONCLUSION


For at least the reasons discussed above, Applicants believe that the Section 112, first paragraph rejections should be withdrawn, that the pending claims are now in a position for allowance, and that this application should pass to issue. Should the Examiner desire a more detailed discussion of Applicants position regarding the Section 112 rejection, or to clarify the Examiner's position vis-à-vis Claims 87 and 88, Applicants would welcome a telephonic interview at the Examiner's convenience.

Enclosed herewith is a Request for Extension of Time and a check for \$460.00.

The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment to Deposit Account No. 50-0540.

Dated: December 26, 2002

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Aaron S. Haleva', is written over a horizontal line.

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